

WHAT IS CLAIMED IS:

1. A parallel multistage band-pass filter comprising:
a plurality of resonators having adjacent resonance frequencies and connected in parallel to each other between an input terminal and an output terminal for a transmission signal;
5 a first transmission line having an electrical length substantially equal to half of a wavelength of the transmission signal incorporated between a first port on an input terminal side of a $(2n-1)$ th resonator of the plurality of resonators numbered from the input terminal side and a second port on an input terminal side of a $(2n)$ th resonator of the plurality of resonators numbered from the input terminal side; and
10 a second transmission line having an electrical length substantially equal to half of a wavelength of the transmission signal incorporated between a third port on an output terminal side of the $(2n)$ th resonator of the plurality of resonators numbered from the input terminal side and a fourth port on an output terminal side of a $(2n + 1)$ th resonator of the plurality of resonators numbered from the input terminal
15 side, in which n is a natural number.
2. The parallel multistage band-pass filter according to Claim 1, wherein at least one reactance element is connected between a ground and one of the input and output terminals.
3. The parallel multistage band-pass filter according to Claim 1, wherein
5 at least one reactance element is connected in series with an excitation element of at least one of the plurality of resonators.
4. The parallel multistage band-pass filter according to Claim 1, wherein at least one of the first and second transmission lines is a dielectric coaxial line.
5. The parallel multistage band-pass filter according to Claim 1, wherein
10 at least one of the first and second transmission lines is a microstrip line.

6. The parallel multistage band-pass filter according to Claim 1, wherein at least one of the first and second transmission lines is a lumped constant line comprising an inductance element and a capacitance element.
7. The parallel multistage band-pass filter according to Claim 1, wherein
15 at least one resonator of the plurality of resonators is a dielectric coaxial resonator.
8. The parallel multistage band-pass filter according to Claim 1, wherein at least one resonator of the plurality of resonators is a microstrip resonator.
9. An amplifier device including the parallel multistage band-pass filter defined in Claim 1.
- 20 10. A communication device comprising the parallel multistage band-pass filter defined in Claim 1.
11. A parallel multistage band-pass filter comprising:
a plurality of resonators having adjacent resonance frequencies and connected in parallel to each other between an input terminal and an output terminal for a transmission signal;
- 5 a first transmission line having an electrical length substantially equal to half of a wavelength of the transmission signal incorporated between a first port on an output terminal side of a $(2n-1)$ th resonator of the plurality of resonators numbered from the output terminal side and a second port on an output terminal side of a $(2n)$ th resonator of the plurality of resonators numbered from the output terminal side; and
- 10 a second transmission line having an electrical length substantially equal to half of a wavelength of the transmission signal incorporated between a third port on an input terminal side of the $(2n)$ th resonator of the plurality of resonators numbered from the output terminal side and a fourth port on an input terminal side of a $(2n + 1)$ th resonator of the plurality of resonators numbered from the output terminal
15 side, in which n is a natural number.

12. The parallel multistage band-pass filter according to Claim 11, wherein at least one reactance element is connected between a ground and one of the input and output terminals.

13. The parallel multistage band-pass filter according to Claim 11, wherein at least one reactance element is connected in series with an excitation element of at least one of the plurality of resonators.

14. The parallel multistage band-pass filter according to Claim 11, wherein at least one of the first and second transmission lines is a dielectric coaxial line.

15. The parallel multistage band-pass filter according to Claim 11, wherein at least one of the first and second transmission lines is a microstrip line.

16. The parallel multistage band-pass filter according to Claim 11, wherein at least one of the first and second transmission lines is a lumped constant line comprising an inductance element and a capacitance element.

17. The parallel multistage band-pass filter according to Claim 11, wherein at least one resonator of the plurality of resonators is a dielectric coaxial resonator.

18. The parallel multistage band-pass filter according to Claim 11, wherein at least one resonator of the plurality of resonators is a microstrip resonator.

19. An amplifier device including the parallel multistage band-pass filter defined in Claim 11.

20. A communication device comprising the parallel multistage band-pass filter defined in Claim 11.